Corlett

Diseases of the Skin Associated with Derangements of the Nervous System.

A Clinical Study.

BY

WILLIAM THOMAS CORLETT, M.D., L.R.C.P. Lond.,

PROFESSOR OF DERMATOLOGY IN WESTERN RESERVE UNIVERSITY, CONSULTING PHYSICIAN FOR DISEASES OF THE SKIN TO CHARITY HOSPITAL, THE CITY HOSPITAL, ST. ALEXIS HOSPITAL, ETC., CLEVELAND, OHIO.

FROM
THE AMERICAN JOURNAL OF THE MEDICAL SCIENCES,
June, 1892.

Extracted from
The American Journal of the Medical Sciences for June, 1892.

DISEASES OF THE SKIN ASSOCIATED WITH DERANGEMENTS OF THE NERVOUS SYSTEM.[1]

A CLINICAL STUDY.

By William Thomas Corlett, M.D., L.R.C.P. Lond.,
Professor of Dermatology in Western Reserve University, Consulting Physician for Diseases of the Skin to Charity Hospital, the City Hospital, St. Alexis Hospital, etc., Cleveland, Ohio.

In the life of the animal cell two essential factors are encountered upon which the well-being of the cell depends. The first is the presence of sufficient pabulum to maintain the various processes which constitute the phenomena of life. The second is that influence derived from the nerve-centers which regulates and gives character to these vital manifestations. A definite understanding as to the silent changes of the former, as well as the subtle impress of the latter, has for the most part evaded the most careful inquiry. Sufficient is known, however, to assist the clinician in his deductions as to cause and effect. In fact, is it not to clinical observation primarily, followed by histological research, that we are indebted for the solution of many problems that belong to the domain of physiology? In dermatology, has not clinical observation alone established the fact that when certain ingesta are withheld from the organism, well-defined cutaneous disturbances follow, as in scurvy? These questions and others are ably discussed in treatises on dermatology; but the second factor, or cutaneous aberrations of sensation and nutrition due to derangements of the nervous system, does not, it seems to me, claim the attention that its importance demands.

Destructive changes in the skin, following lesions of the nerve-trunk, are fairly common.[2] Starr has observed anomalies of sensation, the formation of bullæ and ulceration of the skin follow a destruction of the posterior columns of the cord.[3] Inflammation of the nerve itself or its ganglion has given rise to a vesicular eruption—as in herpes.[4] Cutaneous diseases of reflex causation, due to a distinct focus of irritation,

[1] Read before the Dermatological Section of the Congress of American Physicians and Surgeons at Washington, D.C., September, 1891.

[2] "Nerve Injuries and their Peripheral Effect," London Lancet, May 13, 1887.

[3] The American Journal of the Medical Sciences, May, 1888.

[4] "Diseases of the Skin of Reflex Causation," Med. and Surg. Reporter, June 13, 1885.

are neither unknown nor uncommon.[1] Even emotional diseases of the skin have been recorded.[2] Schwimmer collected numerous observations and adduced all the evidence that the status of physiology and pathology admitted to establish the neuroses of the skin as a distinct class.[3] Since the publication of Schwimmer's monograph eight years ago, bacteriology has offered the most fertile field of research, to the apparent neglect of other lines of investigation.

It is thought, however, that the cases herein reported belong to this, as yet ill-defined, class of neuroses cutaneæ.

CASE I.—Miss R., aged thirty-nine years, an operator in a telephone exchange, presented herself on May 8, 1885, with an eruption on the face. There was nothing in the family history especially bearing on the case. Her general condition previous to the onset of the disease was as follows: For the most part she had enjoyed good health. About the age of twenty-five years several of her teeth became painful, and finally lost their normal sensibility and dropped out. She was told at the time that it was due to the death of the nerve. Since quite young she has been inconvenienced by errors of refraction until one eye has become practically useless. During the past six years she has had frequent attacks of neuralgia, usually on the right side of the face. Three years ago she underwent an operation for uterine polypi. Her duties have been arduous, not infrequently causing extreme exhaustion, and especially so when employed at night.

The eruption first made its appearance in 1881 on the face, in the form of reddish spots accompanied by burning and tingling rather than itching. They extended at the periphery until they attained a size varying from a split-pea to a dime. As a rule they were persistent, although they varied in severity from time to time, while a few have completely disappeared. At present (February 8, 1885) there are five spots on the face and one on the scalp, which vary in size from a split-pea to a silver dollar (Fig. 1). They are of a dull-red color, not perceptibly elevated above the surrounding surface, and sparsely covered with closely adherent scales. The surface is dry, and there is no history of moisture. The disease is most marked on the right side of the face.

The diseases that came first to mind in making a diagnosis were: lupus erythematosus, tinea, syphilis, and possibly eczema and psoriasis. But the varying and comparatively evanescent character of the lesions militated against lupus, and the microscope enabled me to exclude tinea, while the course and history of the disease did not favor syphilis. Psoriasis it clearly was not, and eczema, too, was readily excluded. It was entered, however, as lupus erythematosus, and the usual treatment adopted.

After three months it remained in the same condition as when first seen.

From the fact that the patient's nervous system had become impaired,

[1] "Herpes: Its Etiology, etc.," THE AMERICAN JOURNAL OF THE MEDICAL SCIENCES, July, 1887.

[2] Die neuropathischen Dermatosen, Vienna, 1883.

[3] "Emotions Giving Rise to Skin Diseases," N. Y. Med. Record, April 2, 1887.

partly from the nature of her work, partly from causes unknown, and further, that the cutaneous lesions occupied the territory of frequent neurotic disturbances, as evidenced by pain, the disease was looked upon as one of possible neurotic origin.

Fig. 1.

In the way of treatment at this time she was advised to take a complete rest in the country, and was given a pill containing quinine, phosphorus, and nux vomica. Locally, the following:

℞.—Menthol. . . . . gr. xv.
Acidi carbolici . . . . . gtt. xv.
Zinci oxidi . . . . . ʒj.
Vaselini . . . . . ad ʒj.—M.
Sig.—Apply.

At the end of a month she returned from the country improved in general health, the neuralgic attacks had given her little or no discomfort, and the eruption was decidedly better. She resumed work, and at the next menstrual period the neuralgia returned and the eruption was aggravated. During the eight months following the lesions extended even beyond their former dimensions, and several new ones appeared.

The treatment during this time was varied: galvanism, the iodide of potassium, and Hall's solution of strychnine were used in succession and gradually pushed to their full toleration without avail. Locally the treatment was equally varied and equally futile. The alcoholic preparation of tar known as liquor carbonis detergens and chrysarobin acted well for a time, but were both ineffectual.

On February 14, 1886, the patient was again advised to discontinue work, to use a bland local application, and to take the following:

℞.—Arsenici bromidi . . . . . gr. ij.
Alcoholis . . . . . ℥iv.
Elix. simplicis . . . . . q. s. ℥viij.—M.
Sig.—℥j three times a day.

For the neuralgic attacks the phosphate of soda, one drachm in a glass of water, was given.

On June 16th most of the lesions had disappeared, leaving whitish spots.

The case then passed out of sight until, at my request, she visited me on August 14, 1891. There were present a few small spots, unchanged in character and occupying the same positions. She said about a year ago it invaded the eyelids, but disappeared without leaving any visible signs of such invasion. She further said her sight was still defective, having failed to find relief although several times examined for glasses. She still had neuralgia, but it was not so closely confined to the right side of the face. She had also periodic attacks of megrim, preceding which the eruption was more sensitive and inflamed.

At my request her eyes were examined by Dr. B. L. Milliken, who kindly reported as follows: "O. D., V = 6/LX. O. S., V = 6/XVIII. Has worn glasses for near work off and on for fifteen years, especially lately with some benefit—a spherical glass in right eye, and a cylinder in left. As a child she had convergent strabismus, and was operated on at nineteen, since when she has had divergent strabismus. Testing without mydriasis: O. D. + 3.00 D. cyl. ax. 90°, V = 6/LX. O. S. —0.75 D. ⌒ + 2.25 D. cyl. ax. 135°, V = 6/IX. Examination with the ophthalmoscope shows the following: Right eye: Disc large, irregular in shape, with quite extensive choroidal changes about its border, especially downward and outward, with a broad crescent and high hypermetropic astigmatism. Left eye: Outline of disc obscure, with very extensive choroidal changes about the disc, especially inward, where there is pigment absorption over an area several times the diameter of the disc, and less extensive downward and outward and in the macular region. High mixed astigmatism."

This report extends over a period of six and a half years. The case is still under observation.

CASE II.—Miss G., aged thirty years, a stenographer, sought advice for a disfiguring eruption on the face, August 12, 1889.

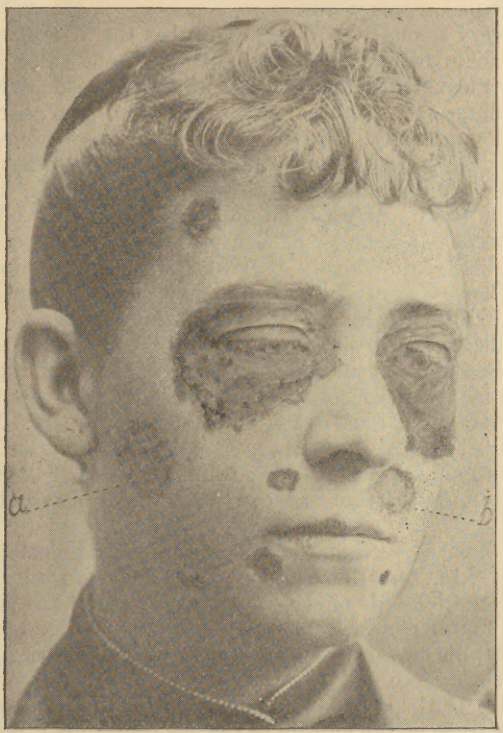
Her family history shows that her mother and several other members of the family belong to the class of hystero-neurotics. Previous to one year ago, when the eruption first appeared, her own health had been exceptionally good.

The disease made its appearance in the form of a reddish spot over the right malar bone. In the course of a few months similar spots came on the upper part of the cheeks and one on the bridge of the nose. Aside from the disfigurement, they gave rise to no special inconvenience. She was under the care of the family physician, who gave arsenic and a number of severe local applications without benefit, as the eruption steadily increased.

When the case first came under my observation the eruption had extended to the eyelids, as shown in Fig. 2. It was dry and covered with a layer of branny scales, but not sufficient to obscure the reddish color beneath.

Although no definite diagnosis was made, it was regarded as a peculiar case of lupus erythematosus; at the same time it brought distinctly to mind the case preceding, to which it bore a striking resemblance.

FIG. 2.



The following treatment was adopted: The lesion (*a*) on one cheek was thoroughly scarified every four or five days, and emplastrum vego applied, as used by Vidal. On other parts mercurial ointment and the chlorohydrate of hydroxylamine (1 to 500 in alcohol) were applied. The lesion (*b*) on the upper lip was cauterized with the acid nitrate of mercury. But in spite of this varied treatment to different lesions they continued to spread.

It now seemed to me that the case presented features that are not usually encountered in lupus erythematosus, and she was again questioned as to a syphilitic history. Failing to get any confirmatory evidence, such a possibility was further tested by giving the iodide of potassium. She took eighteen grains daily for a fortnight, the eruption growing rapidly worse. Islets of the disease grew together until nearly the entire face was involved. There was much burning in the skin and

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watering of the eyes, with a metallic taste in the mouth. The drug was discontinued.

I had repeatedly observed that her nervous organization did not correspond in tone with her fine physical development. Expressions of sympathy excited uncontrollable fits of sobbing, which at times terminated abruptly in laughter. After close application during the day she became greatly fatigued, and instead of a desire to remain quiet at night she was annoyed with restlessness, "as if she must fly," using her own expression. It was further noted that during her menstrual periods the eruption was worse.

Inclining very strongly to the opinion that the disease was dependent on neurotic disturbances, rest was then advised, as it had been the only positive means of relief in the preceding case. The chloride of gold and sodium (gr. $\frac{1}{20}$) was given, and a 3 per cent. solution of resorcin used externally. During the first fortnight there was a slight improvement which soon became more pronounced, so that at the end of ten weeks the eruption had nearly disappeared, except on the eyelids and a small spot on the upper lip. She then resumed work, and the eruption remained *in statu quo* for a time, then grew steadily worse.

Although she had previously disclaimed any difficulty with her sight, she now said her eyes ached after prolonged exertion. She was referred to Dr. B. L. Milliken, who made the following report:

"The ophthalmoscope shows the fundus of each eye normal, except a hypermetropic astigmatism. Has worn + 0.50 D. cyl. ax. 90° on both eyes for nine months with some benefit. Under complete mydriasis the following correction of glasses was made: O. D. — 0.25 D. ⌒ + 1.25 D. cyl. ax. 90°. O. S. + 0.50 D. ⌒ + 0.75 D. cyl. ax. 90°. These have been worn since December 19, 1890, with some relief to the head and eye symptoms, so that she can use the eyes now indefinitely with comfort."

From the first correction there was some improvement in the condition of the skin, but the eruption still remained on the lids and a small area on the left side of the upper lip. After the second correction she not only found comfort, but was further rewarded by the gradual, though steady, disappearance of the eruption, notwithstanding she had returned to work.

February 10, 1891. With the disappearance of the eruption, which has left but a trace at the margin of the left upper lid, a new feature has developed—viz., a loss of pigment in the parts formerly occupied by the eruption, with an increase of the same in the parts adjacent—a veritable vitiligo in appearance.

September 1. The patient returned from a vacation in good health; the eruption was just perceptible at the inner canthus of the left eye, and the disturbance of pigment almost hidden beneath the tan from the summer's exposure.

These observations extend over a period of two years.

CASE III.—Miss McC., aged forty years, was seen for the first time June 7, 1890. She complained of a discoloration of the skin and a painful sore on the right shoulder.

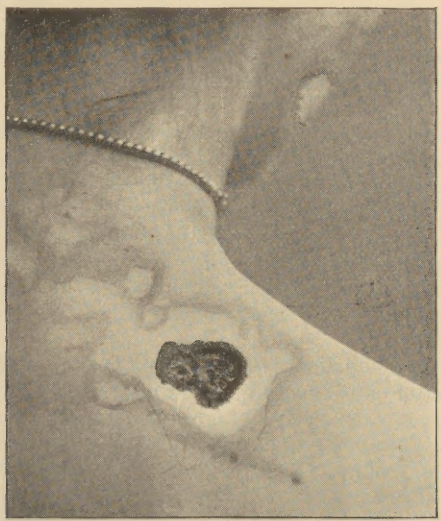
The family history shows that both on the maternal and paternal sides there is a tendency to phthisis. Her father suffered from boils

when about forty-five years old, lasting five years. A few years after this he became hemiplegic, and died of apoplexy at the age of seventy-one. Her mother, aged sixty-five, is also hemiplegic.

Previous to the onset of the disease the patient was never robust, and at an early age encountered *une malheureuse affaire d'amour*, from which she never recovered—"Warped her whole life," as a member of the family expressed it.

The disease began six years ago, in the form of a painful, itchy sore on the right shoulder; a month, or thereabouts, later it broke out on the upper border of forehead—the *corona venalis*, so-called—and finally it invaded the eyelids. In character they were the same, consisting of superficial ulcers which discharged pus, were covered with crusts, which in turn were replaced by scales as resolution progressed.

FIG. 3.



For several years the lesions remained stationary, then gradually disappeared, and six months ago the face became entirely free.

When the case came under my care there was present a lesion about the size of a quarter of a dollar, covered with a thick adherent crust, over the upper border of the right scapula. There was no discharge, it was itchy and painful. This was the original site of the eruption, and surrounding were whitish spots of various sizes which indicated the position of former lesions. The most marked disturbance of pigmentation, however, was on the face, which looked like an ordinary case of vitiligo. Nor was the loss of pigment confined to the areas of former eruption, if we accept the statement of the patient, for it extended downward over the cheeks and sides of the neck. Like vitiligo, too, the surrounding skin was darker than normal.

The patient informed me that the most varied treatment had been used, and at the beginning everything seemed to benefit, but it soon relapsed into its former condition.

She was given $\frac{1}{20}$ grain doses of the chloride of gold and sodium four times daily. Locally, the following was used:

R.—Menthol. }
Acidi carbolici } āā . . . . . ℥ss.
Sodii benzoici }
Zinci oxidi . . . . . ℥ij.
Ol. amygdalæ dul. . . . . ℥iij.
Ung. simplicis . . . . . ad ℥ij.—M.
Sig.—To be applied frequently.

Three weeks later—July 1st—the sore had not only given less annoyance, but it had decreased in size. She expressed herself as feeling better generally.

August 19. It was noticed that the eruption was worse during the menstrual period, which the patient said had been so from the beginning.

29*th*. The lesion had given little discomfort, otherwise there was no change. On account of a feeling of lassitude and loss of appetite, iron, strychnine, and arsenic were given in place of the chloride of gold and sodium.

Sept. 22. General condition improved, otherwise no change.

Bearing in mind the possibility of syphilitic infection where least suspected, and realizing that the local conditions present bore some very striking resemblances to this disease, it was thought best at this time to test the effect of mercury and the iodide of potassium. Five grains of the latter were given three times a day and the dose increased; and the oleate of mercury (20 per cent. ℥j to ℥j) used as an inunction.

Nov. 7. The iodine salt was poorly tolerated, and the eruption remained as before.

Dec. 9. It became evident that no benefit was to be derived from the iodide of potassium and mercury; it was therefore discontinued, and recourse had to the preparation of gold as at first.

Jan. 15, 1891. Patient fainted upon rising in the morning, with pain in the cardiac region, lasting about an hour. Heart's throbs muffled, otherwise no adventitious sounds. Of late she has complained of a weight, which at times amounted to pain, in the upper dorsal region of the spine with tenderness on forcible percussion. In addition to the present treatment the upper part of the spine was blistered.

The case then passed out of sight, but her sister informed me (Sept. 7, 1891) that there was no perceptible change in her condition.

Case IV.—A physician, aged thirty-eight years, has been under observation seven years with a peculiar recurrent eruption on various parts of the body.

The family history shows that he inherits both a neurotic and a rheumatic diathesis from both sides of the family. His father and mother suffered from sick headaches in their early days; his mother's people were sleep-walkers, as are two of the patient's sisters. His mother, when between thirty and forty years of age, had what was called salt rheum, mainly in the winter.

The patient became liable to attacks of megrim at the age of ten years. At the age of twelve years he had an eruption over the tendo

Achillis, which looked like a ringworm. It disappeared in a fortnight, but the following winter it reappeared in the same place. An eruption next appeared, two or three years later, on the palms, in character similar to the preceding.

At the age of twenty-one years he had malarial fever; two years later the seventh nerve on the right side became paralyzed.

Of late years eruptions have appeared at irregular intervals on one of the arms. It has been noted that they are usually preceded by megrim, which latter, he has also observed, is brought on by mental fatigue.

In 1884 I saw him for the first time. He seemed to be in good general health. He had a slight degree of hypermetropic astigmatism of the left eye. My attention was especially called to a reddish spot which was just appearing on the anterior aspect of the right forearm, the size of half a dollar, accompanied by burning and itching. He informed me that for a week preceding he had felt completely worn out. The following day the lesion was perceptibly elevated above the surrounding skin, and in three days a bleb formed over the elevated area. This gradually subsided in about a fortnight, leaving a dark-brown scaly surface, which, in turn, slowly disappeared. Six months later, after a slight attack of megrim, a second outbreak was observed in the same place, but this time there was no exudation.

Since then I have seen several attacks. They have occurred on the arms and on the backs of the hands. They have usually followed megrim, although severe mental strain unaccompanied by the latter seemed to act as an exciting cause.

The eruptions of late have been first erythematous and very irritable, then scaly, and finally leaving a brown patch which disappeared in a few weeks. No special treatment has been employed.

In reviewing the histories of these cases, we have, it is true, nothing in the lesions themselves especially characteristic, nothing that does not occur in well-defined diseases; but we have, on the contrary, certain variations as to course and sequence, a careful study of which may enlighten some hitherto obscure problems in dermatology.

First, we have in each a strong predisposition to various neuroses.

Second, we have, in addition, various depressing influences, mental fatigue, and in Cases I. and II. the indirect irritation from defective sight; the latter, as is well known, is capable of producing an hyperæsthetic state in the important ganglionic centres at the base of the brain. Nor was it, in Case I., until the eye-strain had been fully relieved that the eruption subsided. In Cases I. and II. rest accomplished the same result.

Case III., it appears to me, differed only in severity. There was not only a more direct inherited predisposition to degenerative changes in the nerve structures, but in other tissues as well. There had occurred to her a circumstance more blighting to the essential processes of life than prolonged labor or local strain. Her very expression was indicative of pain; and the tenderness over the cord would lead one to infer that if there were central nervous changes they were graver and more wide-

spread than in Cases I. and II. In them the central disturbances could have been but slight, as they regained their normal tone by mental quietude and the cessation of ocular strain.

Case IV. differed not only in the character of the eruption, but in that the cutaneous lesions were essentially periodical; and dependent upon a definite prodromic disturbance in the nerve centres. He had, too, a strong inherited predisposition to periodic outbreaks of various nervous phenomena, and while the cutaneous lesions differed in course and appearance, yet they bore no less plainly the stamp of their neurotic origin.

I believe, then, that we are warranted in regarding these eruptions as the outward manifestations arising from a pathological condition of the trophic centres.

First. Because in each we have sufficient evidence of such disturbances.

Second. Because vasomotor and trophic changes in the skin frequently accompany certain destructive processes in the cerebro spinal tract. Thus, in syringomyelia, a disease brought to light by modern research, there is a destruction of the posterior columns of the cord; as a result, there are marked trophic and vasomotor changes in the parts over which these centres preside.

Third. Because measures alone which tended to mitigate these central disturbances, also improved the cutaneous lesions.

But the nature and extent of these supposed central changes still remain for the histologist to determine.

333 Prospect Street.